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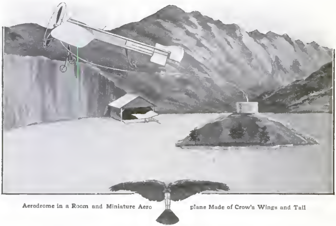
Vol. 15 JANUARY, 1911 No. 1

MINIATURE AEROPLANES DRIVEN BY FLEXIBLE SHAFT



Aerodrome in a Room and Miniature Aeroplane Made of Crow's Wings and Tail

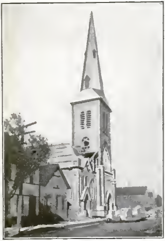
THE miniature or toy aeroplane is usually considered only as a plaything, but as operated by M. Brianne in his unique Paris aerodrome, the little models lend themselves to instructive experiments.

The aerodrome is a room about 13 ft. square, in the center of which is a miniature hill containing an electric motor. A flexible shaft connects this motor with the propeller of the aeroplane model being tested and causes it to revolve. The models are thus made to fly and perform evolutions in very much the same way as real aeroplanes.

An interesting experiment was carried out by M. Brianne in order to study the flight of birds. He attached the wings and tail of a crow to a wire frame, spread them in the exact manner of the bird when soaring, and mounted a small propeller at the front. Attached to the flexible shaft, the bird-model was made to soar like a crow.

BUILDING A CHURCH UNDER AN OLD STEEPLE

The construction of St. Stephen's church, Buffalo, N. Y., now under way, is attracting more than ordinary attention because of the fact that it is being built under the steeple of an edifice that was torn down to make room for the place of worship now in process of erection.



Constructing New Church Under an Old Steeple

When the old church was built more than a quarter of a century ago, it was capped with a tower of oak 170 ft. high, weighing more than five tons. In it were installed three big bells. When the project of building a new church was agitated, the hope was generally expressed that the bells might again be used to summon the faithful to the new edifice. The work of taking down the bells and re-instating them in a new tower would, it was foreseen, entail much additional expense.

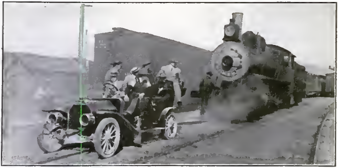
The architect of the proposed church evolved the ingenious plan of leaving the old tower, containing the bells, standing and building the new church in under it. All of the church was then torn down with the exception of the front portion which supported the front tower. The part left standing as a support to the tower was securely braced. The outer wall of the front part of the new church is being built around the section of the old church that was left intact. When the new walls are built up as high as the base of the tower, the tower will be placed on said walls and the original support of the tower will be removed.

BALLAST SPREADER USED TO UNLOAD COAL

A unique method of unloading coal for winter storage has been adopted by the Atchison, Topeka & Santa Fe Railroad at Chillicothe, Ill. A switch engine picks up one of the 40-ton dump coal cars, couples it to an ordinary ballast-spreading car, and pushes them down to the end of the spur track. The center dump doors are then opened and the engine backs out, the coal dropping on the track and being plowed aside by the ballast-spreading car. This operation is repeated until the coal is piled on each side of the track as high as the plow will push it. Then 40 or 50 laborers raise the track by pushing the coal under it, and the dumping recommences.

MOTOR CAR TOWS A HEAVY RAILROAD ENGINE

The tremendous pulling power of an automobile of the ordinary touring car type was demonstrated at Los Angeles by an enthusiast who hitched his 30-hp. car to a 110-ton passenger locomotive, and pulled it along the tracks a hundred yards or more. The feat was performed on the Sante Fe tracks and was the result of an argument between an automobile dealer and a railroad engineer who had recently acquired an automobile. The dealer asserted that the engineer's automobile had sufficient power to pull the locomotive—and

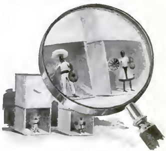


Automobile with 110-Ton Passenger Locomotive in Tow

proved it. He selected a car from his stock that was similar in every respect to that purchased by the engineer. A heavy rope was wound around the rear axle of the automobile and attached to the coupler on the locomotive cow-catcher. In order to secure the necessary traction for the rear wheels of his car, the motorist put four men in the tonneau and another stood on the rope. The automobile engine was started slowly and the wheels whirred for a moment after the clutch had been thrown in without moving the locomotive. Then the big engine commenced to creep slowly forward and was towed the required distance. After the test the automobile was driven through the streets of the city to prove that the feat had not strained the mechanism.

MEXICANS SKILLFUL AT DRESSING FLEAS

Southwestern America contains some of the biggest works of nature, and it also has some of the most minute. While it is not the only section of the earth where fleas are to be found in abundance, it is probably the only place where the natives use these little pests as ornaments or toys and dress them in fancy costumes. The Mexicans are held responsible for the manufacture of these unique specimens of handicraft. The fleas are coated with a sort of varnish and are dressed according to the fancy of the person doing the work. Minute toreadors, señoritas and señoras are given all the habiliments of their calling and sex. The dress is applied with a very small brush, like paint, and usually is of very gay colors. Frequently a guitar or tambourine is placed in the "hands" of the flea-doll. After being dressed, the fleas are mounted in boxes scarcely a fourth of an inch square and are then ready for



Mexican Dressed Fleas Under the Microscope

the tourist or the curio seeker. It requires a powerful microscope to examine the fleas and their gay attire.

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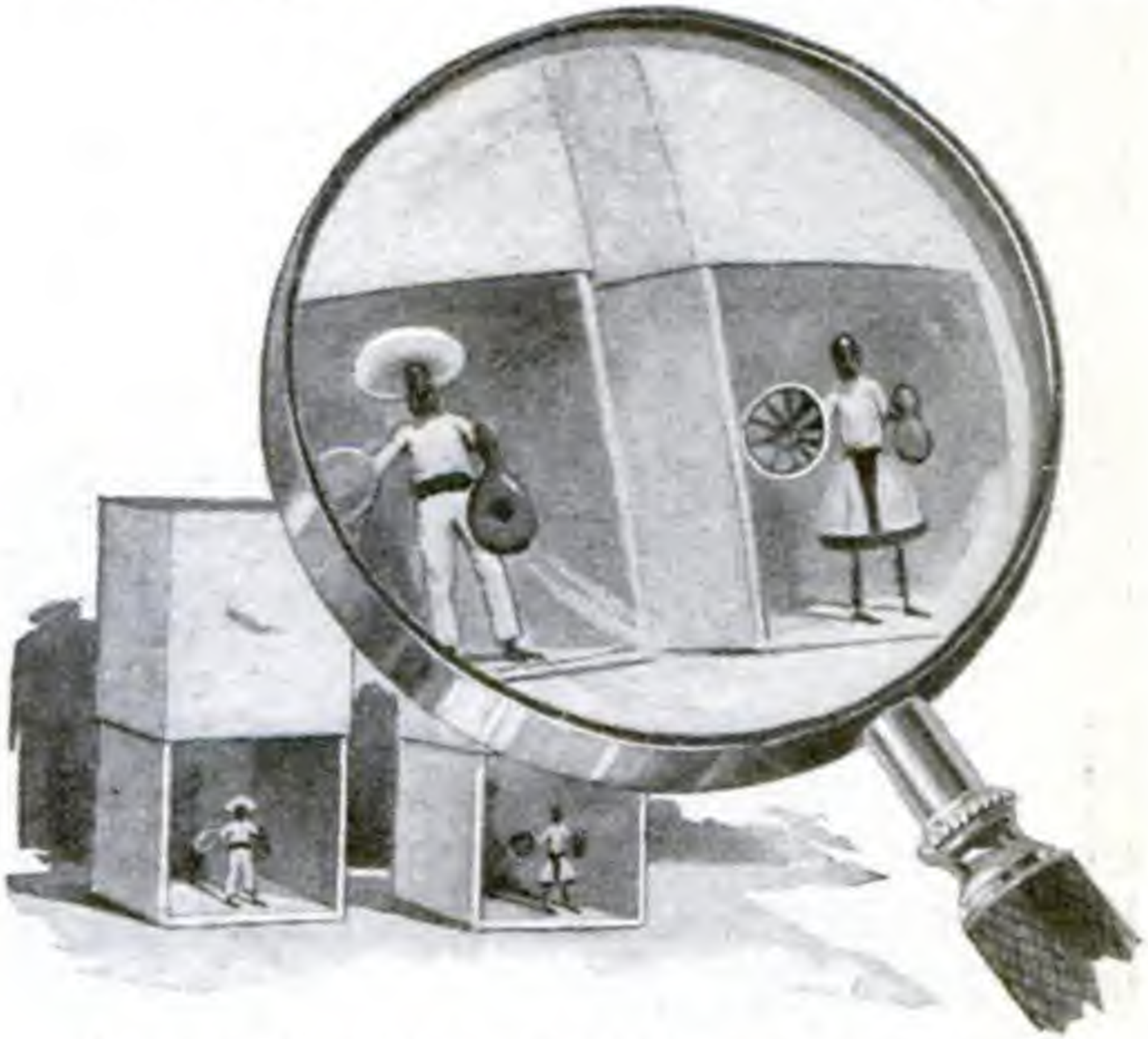
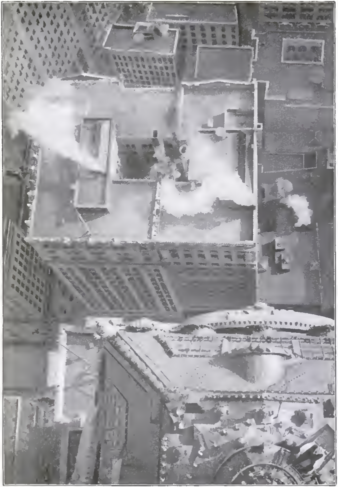


Mexican Dressed Fleas Under the Microscope



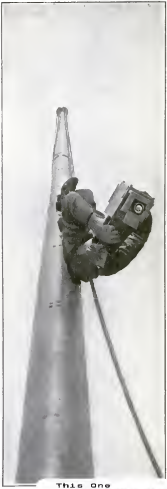
Remarkable Birdseye Photograph of New York Skyscrapers Taken from Perch on Singer Building Flagpole, 700 Ft. above the Ground—Building in Center is Broadway Maiden Lane Building, 18 Stories High

NEW YORK CITY AS THE BIRDS SEE IT

The most remarkable photograph ever made of lower New York was taken from the top of the flagpole of the Singer building, 700 ft. above ground, by a daring steeplejack who climbed up the pole for the special purpose of making the picture. George Nealy is the man who made the dizzy climb, and in order to secure the photograph it was necessary for him to hang head downward from the boatswain's chair he had rigged to draw himself to the top of the pole. Nealy is known as "The Human Fly" and has made a number of climbs to the tops of steeples and tall buildings for the purpose of making repairs. He selected the Singer building as the best viewpoint for the photograph of New York as the birds see it, because from that height he would not be blanketed by the walls of adjoining buildings.

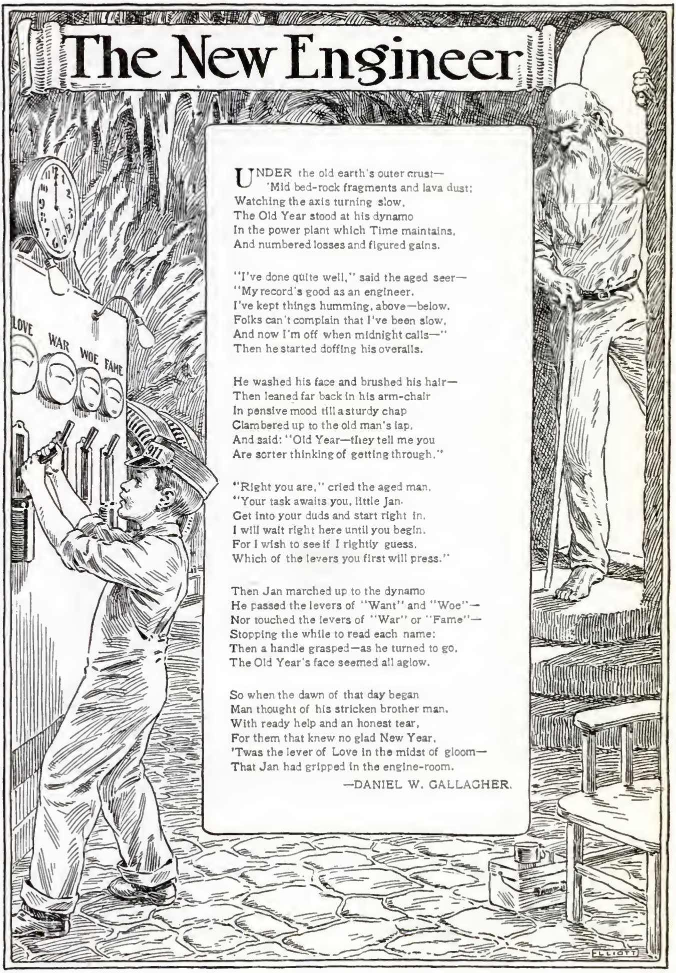
The feat was performed at about noon. The photographer made his way from the observation-room of the tower to the top with the boatswain's chair, a trapeze-like apparatus, which is built to slide up and down the pole. When he reached the top Nealy secured his ropes and then, in true circus-performer style, swung himself head down to sight the camera and take the picture. It was necessary for him to raise the camera by ropes from the observation-room to the height he had reached. Before righting himself he lowered the camera again to his awaiting assistant, and then, after performing a few acrobatic feats, slowly made his way down the pole to a more secure footing. While Nealy was engaged in photographing New York, another photographer took advantage of the opportunity to make a picture of him.

ℭA group of English capitalists is preparing to organize a company for the transportation of mails, passengers and express matter between Liverpool and North Wales, in dirigible balloons and motor cars.



Perilous Pe
Electricia

This One
WA4E-WS4-C929



The New Engineer

UNDER the old earth's outer crust—
'Mid bed-rock fragments and lava dust;
Watching the axis turning slow,
The Old Year stood at his dynamo
In the power plant which Time maintains,
And numbered losses and figured gains.

"I've done quite well," said the aged seer—
"My record's good as an engineer.
I've kept things humming, above—below.
Folks can't complain that I've been slow,
And now I'm off when midnight calls—"
Then he started doffing his overalls.

He washed his face and brushed his hair—
Then leaned far back in his arm-chair
In pensive mood till a sturdy chap
Clambered up to the old man's lap,
And said: "Old Year—they tell me you
Are sorter thinking of getting through."

"Right you are," cried the aged man,
"Your task awaits you, little Jan.
Get into your duds and start right in,
I will wait right here until you begin.
For I wish to see if I rightly guess,
Which of the levers you first will press."

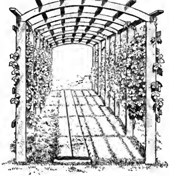
Then Jan marched up to the dynamo
He passed the levers of "Want" and "Woe"—
Nor touched the levers of "War" or "Fame"—
Stopping the while to read each name;
Then a handle grasped—as he turned to go,
The Old Year's face seemed all aglow.

So when the dawn of that day began
Man thought of his stricken brother man,
With ready help and an honest tear,
For them that knew no glad New Year,
'Twas the lever of Love in the midst of gloom—
That Jan had gripped in the engine-room.

—DANIEL W. GALLAGHER.

CONCRETE GRAPE ARBOR

A few details of the construction of this concrete grape arbor, located at Alton, Ill., may prove helpful to those who contemplate work of the same nature. The posts, all 10 ft. long, 6 in. square at the base, and tapering to 6 by 3 in. at the top, are set in position in holes 3 ft. deep. They are reinforced with ⅜-in. plain round iron, and weigh 200 lb. each. The lath are fastened by means of ¼-in. bolts, inserted at the proper distances along the posts immediately after the latter are finished.



Attractive Concrete Grape Arbor

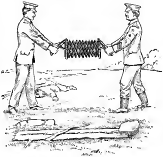
The arch pieces, made in a wooden mold measuring 4 by 4 in. inside, are also reinforced with ⅜-in. iron rods bent to the shape of the mold. The arches are fastened to the posts by bolts in the same manner as the lath.

CROSSES ATLANTIC THRICE IN THREE WEEKS

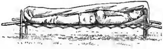
Captain Dow of the Cunard steamer "Carmania" has the unique distinction of crossing the Atlantic three times, traveling 8,500 miles, within the space of 22 days, a feat never before performed. It occurred entirely through accident. In October the commander of the "Mauretania," being incapacitated by illness, was unable to resume command of his vessel, and Captain Dow, who was due inward at Fishguard the morning after the "Mauretania" sailed, was ordered to take command of the big ship at Queenstown. On the westward passage he lowered the record of the "Mauretania" ten minutes and would have reduced it on the eastward trip but for rough weather off the Irish coast. As it was, he reached Fishguard an hour earlier than had ever been done previously. This completed the third trip across the Atlantic, all made within 22 days, six of which were spent in New York.

TELESCOPIC ARMY STRETCHER

One of the improved hospital appliances of the British army is shown in the accompanying illustrations in a partially folded and an extended position. It is a telescopic stretcher, which folds up into a very compact bundle, yet is very substantial when extended.



Stretcher Partially Extended



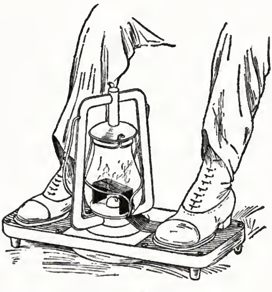
The Stretcher in Use

COALING SHIPS IN JAMAICA

A very economical method of coaling ships is practiced at Kingston, Jamaica. Labor is cheap and abundant, and when a vessel is to be coaled, a hundred or more negroes gather. These men are furnished with baskets holding about 1½ bushels which they fill and carry from the coal yard to the ship's bunkers. As each carrier passes up the gang plank with a load, he receives a penny from the paymaster. This prospect of receiving money at every round keeps the men fairly crowding up the plank.

LANTERN FOOT-WARMER

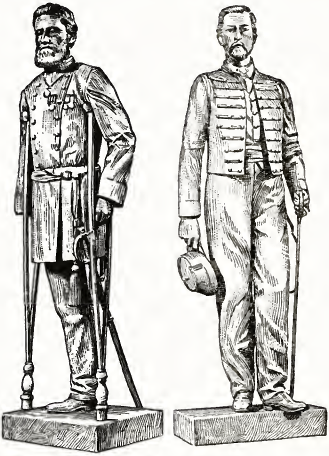
An enterprising Canadian concern has placed a unique combined heating and illuminating device on the market in the guise of a lantern foot-warmer. It is designed, of course, for use in rural communities, where considerable driving is necessary during winter as well as summer. Placed underneath the lap-robe, which, it is claimed, interferes in no way with proper combustion, the lantern effectively warms the feet and limbs, which means comfort all over. A copper ribbon passes over the burner, and this conserves the heat without affecting the radiation of light. Should light at any time be required, the device is immediately available for such a purpose.



Combined Lantern and Foot Warmer

STATUES OF SHEET METAL

The statues of the Mexican officers, General Pacheco and General Ojinaga, unveiled at Chihuahua during the celebration of the Mexican Centennial, were made of stamped sheet copper by an Ohio concern, and are good examples of this new method of statue work.



Metal Statues of Mexican Warriors

The statues are portrait figures modeled from photographs, the models being reproduced in every line and detail in plates or sections stamped in heavy metal dies. The sections were then joined together by riveting. All the sections were countersunk, which makes the joining practically invisible. The height of each statue is 9 ft.

¶The men engaged in salving the British battleship "Montagu," which was wrecked on Lundy Island four years ago, have, it is reported, discovered a Spanish wreck which went down about 1860, from which a quantity of anchors and heavy chains have been recovered, while much valuable material yet remains to be removed.

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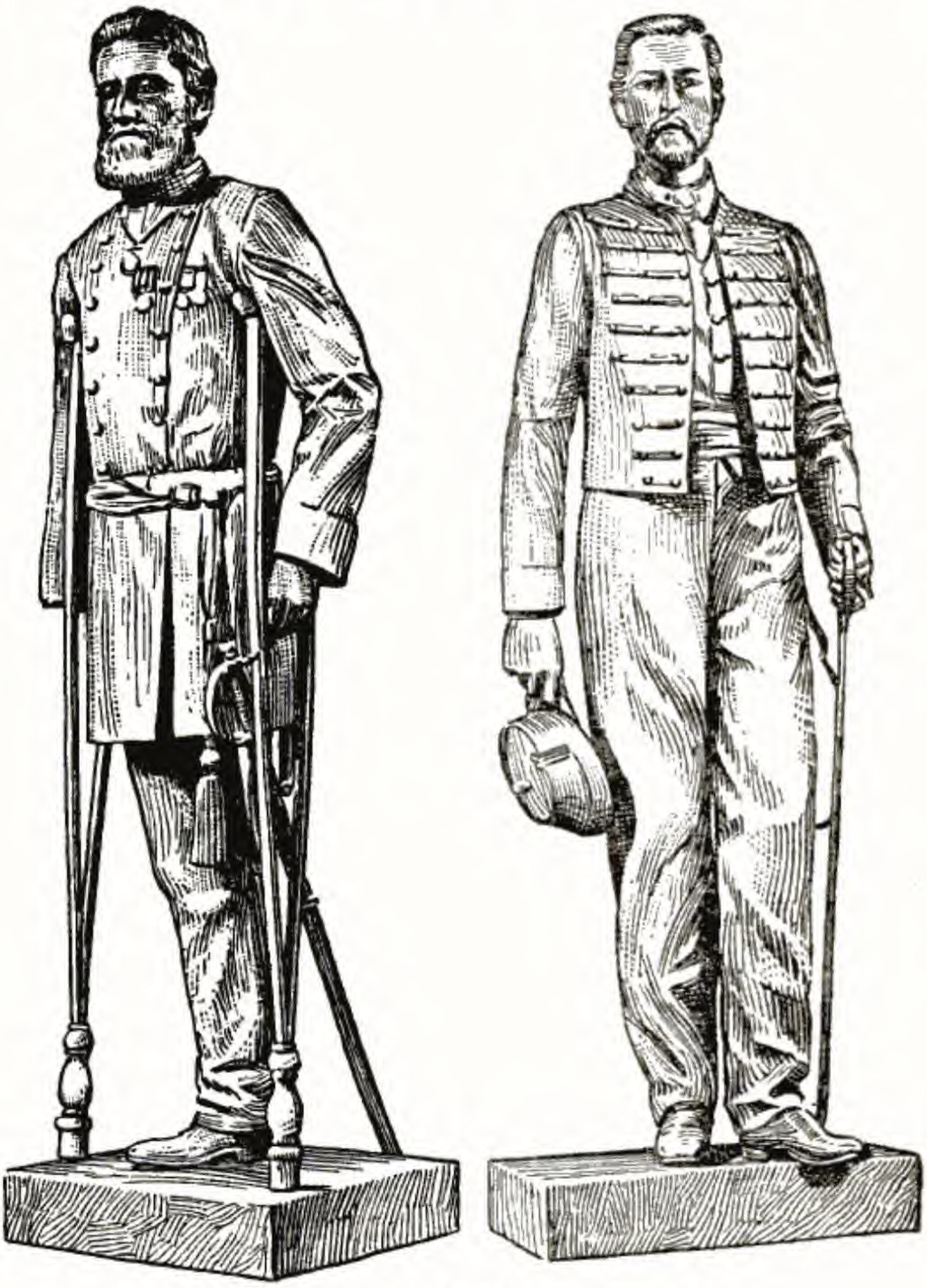
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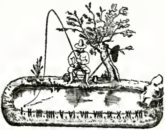
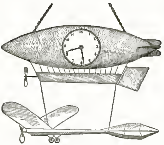
UNIQUE CLOCKS FOR WINDOW ADVERTISING

Action in window displays always draws attention, and this is especially so when the action also has to do with the time of day. The unique clock settings illustrated herewith, are designed primarily for display in jewelers' windows, but almost all of them would be worth while in the show windows of other retail stores.

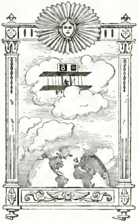


Fisherman's Clock

Probably the most unique are the "fisherman's" clock and the "convivial" clock. In the former, the time is marked by the float moving along the edge of the water, which is represented by a mirror. Along the bank in the foreground will be seen a number of little twigs, which, on closer inspection, will be found to represent the hours and half hours. The mechanism responsible for the working of this clock consists of an alarm clock movement concealed in the rock to the right of the illustration. This operates a hidden magnet, which moves from left to right, attracting in its wake over the smooth surface of the glass the little iron float. The float, under the influence of the magnet, moves along regularly, indicating the time.

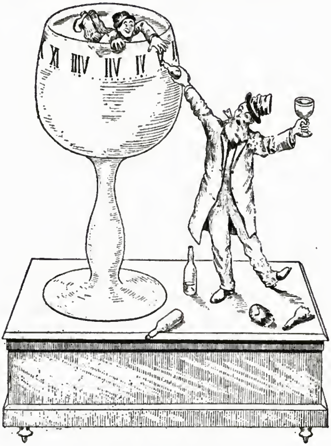


Aerial Clock



Aeroplane Clock

The convivial clock also depends upon a magnet for its effectiveness. The main setting is a crystal goblet filled with water, the rim being divided into 12 equal parts and the hours marked around the border in black. One of the intoxicated twain is carved from wood and floats in the water with one of his hands, which is made of iron, extending over the brim as if reaching for the bottle held in the hand of the other. On the figure holding the bottle is a magnet which attracts the iron hand and keeps the floating figure steady while the goblet revolves. The head of the bottle indicates the time on the revolving goblet.



A Clock of Intoxication

In the "aeroplane" clock, the biplane ascends from the globe every minute, the movement being caused by clockwork and a bent lever concealed in the clouds. When the biplane comes in contact with the sun, a pin acts on a ratchet wheel concealed behind the portion of the biplane bearing the figures. This wheel has 60 teeth, and on its face are figures from 0 to 59, representing the minutes. Every time the biplane strikes the sun, the wheel advances a notch, which displays the next minute figure in rotation. When the sixtieth notch on the wheel is reached, a second pin causes the hour wheel, which is graduated from 1 to 12, to advance one notch.

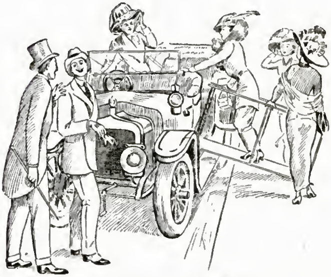
The aerial clock setting in which a dirigible balloon and monoplane are combined differs from the other settings in that the time is told by an ordinary dial. The clockwork back of the dial, however, imparts motion to the propellers.

OIL MAY BE USED TO FIRE POTTERY KILNS

Manufacturers of pottery throughout the country are watching with interest experiments being carried on with crude oil instead of coal in firing kilns. One plant in Illinois has already built kilns for use of oil and an Ohio concern is now experimenting with the process. The question of the use of oil instead of coal in potteries came up some years ago when a kiln fitted with oil burners was tested by a big petroleum concern. The inability to maintain a uniform heat led to the discarding of the system. The presence of carbon was also considered a fault. A new burner has now been invented which, it is declared, will overcome the objectionable features hitherto found in the use of oil. As a kiln of pottery is a valuable piece of property, most of the firms engaged in the business hesitate to change their systems.

THE LARGEST FRENCH SHIP

The new turbine transatlantic liner "France," recently launched at St. Nazaire for service between New York and Havre, is the largest vessel ever built in France, as well as the largest flying the French ensign. She is 715 ft. long, with a beam of 75 ft., has eight decks, and will carry 2,000 passengers. The height from keel to deck-houses is 78 ft. 9 in.



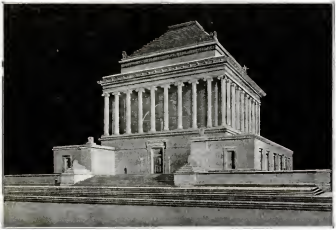
The London Motor's Idea of What May Develop, if the Hobble Skirt Continues in Popularity

MASONS' MILLION-DOLLAR TEMPLE

The southern jurisdiction of the Order of the Scottish Rite of Free Masonry has commenced the erection of a million-dollar temple in Washington, which is expected to be the handsomest of its kind in the world. The men selected to pass upon every detail in construction and ornamentation are men whose reputations in the world of art are international. It is expected that the temple will be completed in about 18 months. The international conference of Supreme Councils of the world, 26 in all, meets with the southern council in October, 1912, and arrangements are being made to hold the conference in the new temple.

If the purposes of the Supreme Council are to be carried out, the temple will reflect artistically and symbolically the council's Masonic glory in being the parent of the world's councils. The approved plans provide for an imposing structure, classic in design, of white marble, and with a gilded dome rising 150 ft. from the street level. The temple will consist of three stories, a basement, and a sub-basement. Leading from the sidewalk to the temple will be a symbolic plaza of granite the full width of the building. Ornate massive portals form an entrance symbolic of the Masonic degrees.

The entrance will be flanked on each side with two giant sphinxes and on the terrace will be symbolical and allegorical statuary. Over the arched entrance to the temple will be a golden sunburst, the rays of which will flash from the symbolic double eagle and triangle of the 32d degree.



Temple to be Built by Masons in Washington

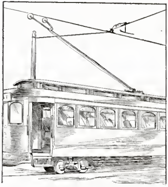
Above will rise 33 columns, each 33 ft. high, which will surround the building on three sides. Entrance to the structure will be through a spacious vestibule leading to an atrium, 70 ft. by 60 ft., at the far end of which will be located the grand staircase, leading to the temple or cathedral floor.

The apartments on the main floor

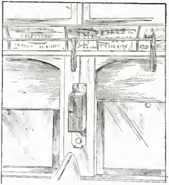
will be 33 in number. Each state in the southern council will have an apartment. There are 33 degrees in Masonry and each room will have separate symbols and emblems, representing each degree. Each one of the 33 states represented in the Supreme Council will be represented by a coat of arms. Each room will so communicate with the adjoining rooms that it will be possible when occasion requires to throw them all into one, which will lead to the council chamber of the 33rd degree.

The crowning glory of the interior will be the cathedral, or temple, which will occupy the entire upper floor of the building. It will represent a symbolic hollow cube 75 ft. square, rising to a height of 75 ft., surmounted by the curved interior of the golden dome. It will be lighted by a great circular skylight, 25 ft. in diameter.

In what is known in Masonic circles as the "grand east," where the great dais of state of the sovereign commander is placed, and rising above the columns, will be another great golden sunburst flashing from the symbolic double eagle and triangle of the 33rd degree at the entrance to the temple.



The Sub-Trolley Arrangement



Appearance of Indicators

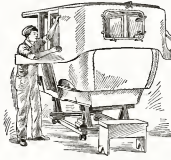
STREET INDICATORS FOR STREET CARS

Several mechanical street-indicating devices for street cars have made their appearance from time to time, but the system here illustrated is different from the others in that the indicators are placed in the front and rear vestibules and, inside of the car, between the windows. The sliding pointers, operated by electricity, move automatically to the name of the street being approached. All that is required of the conductor is to change the cardboard faceplate at the end of each run.

The automatic action of the pointers is made possible by means of a small sub-trolley, attached to the main trolley pole. This sub-trolley engages a short section of sub-trolley wire when an intersecting street is crossed, thus closing a circuit

SHIPPING LIVE FISH IN SEALED JARS

Following the plan adopted by the large transatlantic liners of keeping fish intended for the table alive in tanks until needed, an American firm is testing the possibility of shipping live fish from one country to another. A trial shipment was recently made on a German liner from New York. The method of shipping is this: The jars are filled with water, sealed and placed in large tanks. Here the jars are uncovered and compressed oxygen forced into them. The fish are then placed in the jars, which are again sealed. It is believed enough oxygen can be forced into the bottles or jars to keep the fish alive during an ocean voyage of ordinary length.



Making Aluminum Auto Bodies

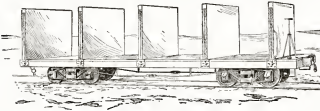
AUTOMOBILE BODY CONSTRUCTION

The method of automobile body construction as applied in a Detroit plant, one of the largest in the world, is clearly shown in the accompanying illustration. The body material is aluminum, which is bent onto the frame as shown.

MAY COOK FOODS WITH HOT AIR

During a recent convention of bakers in London an apparatus was demonstrated which utilizes superheated air for cooking purposes. The steam of an ordinary kitchen boiler is conveyed in pipes to the superheater, where in a series of coils above a coke fire, its temperature is raised to 1,000 deg. F. without increasing the pressure. Passed through the hollow rods of a griller, the air quickly raises the metal to the same temperature as itself, and then anything can be cooked from a steak to biscuits.

The inventor believes that the kitchen of the future will have no blazing fire, and that everything will be cooked by the turn of a valve admitting the heated air. The air, after passing through the hollow grillers, can be further utilized for heating rooms.



SPECIAL CARS FOR SUGAR CANE

Fifty specially constructed cars have been shipped to Peru by an American car concern for the transportation of sugar cane. Bulkheads, 5 in. thick, are spaced 5½ ft. apart to facilitate the unloading, and are plated with $\frac{3}{16}$-in. steel on each side.

COMBINED SHUNTING LOCOMOTIVE AND CRANE

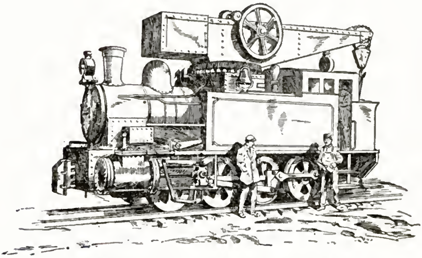
A locomotive designed for shunting work and provided with an eight-ton lifting and sluing crane is being built by a British firm. The crane is carried on a table erected over the boiler, immediately in front of the firebox, and is arranged to swing clear of all mountings. A winding barrel, supported between the sides of the crane jib, is driven by means of a single-purchase gearing from a vertical shaft, passing up through the center of the crane table. Power for this shaft is provided by a two-cylinder hoisting engine, carried astride the boiler immediately in front of the crane. The two-cylinder vertical sluing engine is placed between the cab front and the crane table.

The feature of the outfit is the successful provision of sufficient stability to raise a weight of eight tons at a radius of only 16 ft., while preserving the essential characteristics, such as the closely coupled wheels, of a shunting engine.

U. S. PRINTER'S TYPE WOULD ENCIRCLE WORLD

More than 3,000 tons of type metal were used in composition at the Government Printing Office during the past year. If this type were laid end to end it would reach 31,000 miles. Composed in the regulation document page of 10-point type, it would be more than 980,000 pages. One hundred and two 30-ton cars would be required to remove the year's supply of metal. An average of 11,500 galleys of type await return to the various government departments. While about 4,000 are undergoing the usual routine of assembling, correction, and composition, 38,000 document pages are in hand partially completed.

SPOUTING WELL STARTLES FLORIDA TOWN

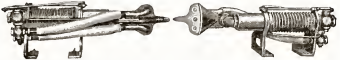

Eight-Ton Crane or Shunting Locomotive

An intermittent, spouting, geyser-like stream of water that suddenly commenced to issue from a well on the edge of a lake, ascending sometimes to a height of 30 ft., startled the citizens of Orlando, Florida, recently. State Geologist E. H. Sellards, after careful examination, believes the geyser-like actions of the well were caused by compression of air which entered the mouth of the well with the water from the lake. He pointed out that the top of the well, which is 260 ft. deep and 12 ft. in diameter, was a few inches below the level of the water in the lake and received water at only about one-half its capacity. This meant that a large amount of air was taken into the well with the water, which evidently escaped into a chamber along the side or at the bottom. The air is forced into this chamber under pressure, until the pressure ultimately becomes so great that the air rushes out with considerable force carrying a column of water with it. The spouting occurs at intervals of about five minutes.

ℂTaxicabs have been introduced in Singapore, a rate of 40 cents, Straits currency, per hour being charged. This is about 24 cents, U. S. currency. Singapore money values fluctuate with the price of silver, the Straits dollar being worth about $0.60, U. S. currency.

AUTOMATIC AIR AND STEAM COUPLER

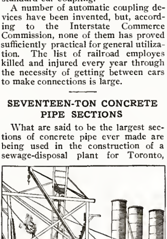
An automatic coupler, which is attached underneath the car coupler, and connects the air-brake hose, steam line, and signal has just been invented by a Portland, Ore., engineer. The uncoupling is accomplished by the pulling of the cars apart. All parts such as valves, spring, pipes, etc., are of standard size and such as are now being used by the railroads. It can be used with the standard car coupling.


Coupler Devised to Prevent Accidents

A number of automatic coupling devices have been invented, but, according to the Interstate Commerce Commission, none of them has proved sufficiently practical for general utilization. The list of railroad employes killed and injured every year through the necessity of getting between cars to make connections is large.

SEVENTEEN-TON CONCRETE PIPE SECTIONS

What are said to be the largest sections of concrete pipe ever made are being used in the construction of a sewage-disposal plant for Toronto, Ont. These sections are 24 ft. long and 5½ ft. in diameter and weigh 17 tons each. They have steel flanges at the ends and are bolted together.


Largest Concrete Pipe Sections Ever Made

Toronto's sewage-disposal plant, which will be completed in 1911 at a cost of $2,400,000, will take care of the sewage now poured into the bay at the rate of 30,000,000 gal. per day. The work, which was started last year, includes 14 miles of sewer and a disposal plant consisting of 24 settling basins having a capacity of from 40,000,000 to 60,000,000 gal. per day.

JAPAN FACES PROBLEM IN FORMING AN ALPHABET

The matter of adopting a new form of written language is agitating the scholars and business men of Japan, and a number of proposals have been made that would simplify the present system of symbol writing that has been handed down to the present-day Japanese from their forefathers of thousands of years ago. The most favorable proposition yet received is for the formation of an alphabet of 47 letters which will include all the Roman characters, a number of Russian and a few original ones. At present, the ideographic system of writing, made up of symbols inherited from the Chinese and Koreans from whom the Japanese obtained their early civilization, still prevails. In the eighth or ninth centuries there was added to these forms another system of writing known as "Kana," which represents the sounds of which a word is composed rather than a whole word or phrase as is the case with the Chinese. Almost all Japanese books are printed in a mixture of Chinese and Kana. According to this system each individual word has its separate sign. Most characters are obtained by means of combination, the chief element being termed a "radical," because it gives a clew to the signification of the whole. It is much as if, having in English special hieroglyphic signs for such easy, everyday words as "tree," "house" and "box," we were to represent boxwood by a combination of the sign for "tree" and the sign for "box," and a box at the opera by a combination of "house" and "box."

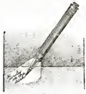
The adoption of new symbols does not carry with it any reconstruction of the language itself.

MONORAIL CAR WRECKS AN AUTOMOBILE

A collision between a monorail car and an automobile, which took place in New York recently, wrecked the auto without damaging the car. A curious feature of the occurrence was that the operation of the car line had been discontinued because of accidents in the past, and at this time a series of tests was in progress to demonstrate that sufficient precautions had been taken to avoid accidents in the future. The automobile, which had two occupants, was running across the track when the car crashed into it. The sharp steel point of the car pierced the tonneau.

SELF-ILLUMINATING PENCIL

An electrically lighted pencil for persons who sometimes have to write in the dark is one of the latest novelties in writing implements. The holder of the lead is provided with a source of electric supply and a tiny bulb, which throws a circle of light on the paper around the point.



The pencil is adapted for the use of physicians, newspaper men, policemen, and for workers in other branches of industry who find it at times necessary to make notes while on the street at night or in darkened rooms.

HYDRAULIC BRAKES FOR AUTOMOBILES

An English method of applying brakes to all four automobile wheels by means of hydraulic pressure is shown in the accompanying sketch. When the device is operated, pressure is conveyed through the tubes leading from the fluid reservoir to the ram cylinders, and by acting on the toggle connections between the ram cylinders and the ends of the brake shoes, expands the latter.

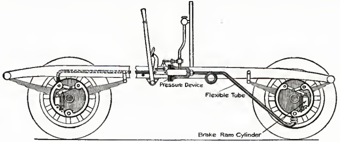
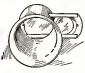


Diagram of Hydraulic Auto Brakes

IMPROVED WATCHMAKER'S EYEGLASS



A mere shake of the head changes this improved eyeglass for watchmakers from a single to a double lens. When only one lens is needed, the secondary lens is held in a slide extending out from the loop, and a shake of the head, as before mentioned, is sufficient to cause it to slide into the loop, when its service is required.

PHILIPPINE WOODS FOR THE CHINESE EMPEROR'S TOMB

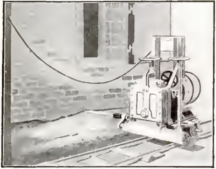
The tomb of the late Emperor of China will be built largely of hard woods from the Philippine Islands. Orders have recently been placed with a Manila lumber firm for 50,000 ft. of Philippine walnut, narra and lumbayo. The framing timbers of the mausoleum will be made of the walnut, giant trees on the island of Mindanao having been selected for the purpose. Some of the timbers will be 60 ft. long by 45 in. in diameter and will weigh 17 tons each. The narra, which is also known as "Philippine mahogany," and lumbayo are to be used for the interior finishing. Narra is said to be the most beautiful hard wood in the world. It is of the same quality and texture as South American mahogany, but is a reddish brown in color and takes a brilliant polish.

BLIND COUPLE AS TELEPHONE OPERATORS

A telephone exchange at Bloomingville, Ohio, is conducted by two operators who are totally blind. The blind operators have been in charge of the switchboard almost a year and during that time there have been practically no complaints of the service given by them. The switchboard they use is of the ordinary type, with the addition of a bar that is attached below each row of drops, on which are raised figures which the blind operators touch to determine the numbers and make connections.

WALLS MADE DAMP-PROOF BY NEW PROCESS

An English inventor has designed a machine and originated a process for making old walls damp-proof which has become popular among British house owners. The walls can be treated without disturbing the occupants of the houses and very little debris results from the system. The machine cuts a half-inch seam through the wall near the foundation and into this opening sheets of lead covered with asphalt felt are inserted. The walls are then wedged and the seams filled with cement. The machine has been used in churches, houses, barracks and government offices, and has been found to work well in almost every case. The insulation used against dampness has given most satisfactory results.

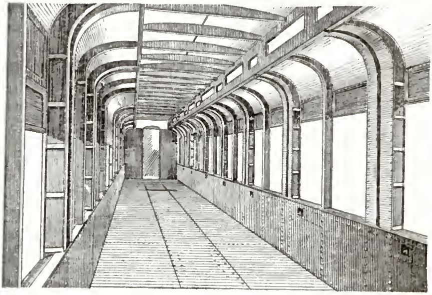


Making a Wall Damp-Proof by Inserting Sheets of Felt-Covered Lead

LIGHTWEIGHT ALL-STEEL PULLMAN CARS

The first steel passenger cars were so heavy as to cause doubt in the minds of railroad motive-power and operating officials as to their general practicability, but the weight has been gradually reduced without sacrifice in structural strength.

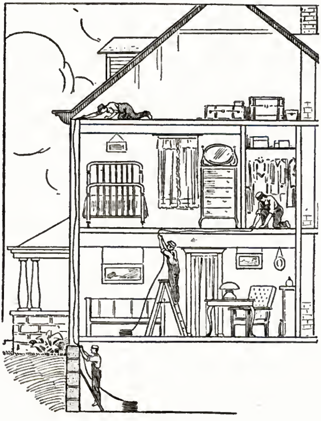
The bodies of the new all-steel Pullman cars for the Pennsylvania system average 100,000 lb. in weight, and the two trucks 43,500 lb. As a result, the total service weight is only from 12 to 15 per cent greater than that of the standard wooden sleeping-cars.



Framing of an All-Steel Sleeping-Car

WIRING OLD HOUSES

Wiring old houses for electric lights does not demand the marring of woodwork and tearing up of floors, walls and ceilings. Instead, the electrician may enter the average house and wire it completely without causing near the trouble and dirt that painters, paper hangers, and carpenters are responsible for.



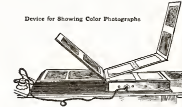
The "Snake" at Work

It is done by a clever system of "fishing" wires up and down through the walls by means of a thin steel tape called a "snake." The wires usually enter a house through the basement. One electrician will probably take up a single board from the attic floor near the wall. Then he will insert the "snake" and wiggle it up and down until it finds a clear drop to the basement, where it will be caught by a second electrician, who will tie the wires to it and signal for them to be pulled up. In exactly the same manner, other wires are fished up and down the walls and under the floors to the little holes in the plaster where the fixtures are to be located. Sometimes it becomes necessary to remove a section of baseboard to fish the wires under hardwood floors to the fixture holes in the ceilings, or to take up a section of floor in a closet, but the "snake" always accomplishes its task.

ℭThe crossing policemen in Grand Rapids, Mich., have been supplied with copies of the city telephone directory, which are placed in especially made boxes, furnished by the telephone company and attached to its poles at each street corner.

ILLUMINATED ALBUM FOR COLOR PHOTOGRAPHS

Photographs in color, made possible by the new color-photography, cannot be printed on paper as can ordinary photographs, but are transparencies which must be held up before the light before the subjects can be seen. By an ingenious arrangement of double leaves, a French inventor has devised an illuminated album by which such photographs may be examined with as much ease as ordinary photographs in an ordinary album. Two electric lamps are placed in a glass-covered box, and the double leaves containing the photographs are placed in turn over this glass.


Device for Showing Color Photographs

THIEVES DECEIVE POLICE WITH DUMMY SAFE

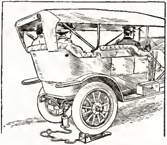
Ingenious English thieves recently removed a safe from a branch post office, leaving a dummy in its place so that the absence of the real article would attract no particular attention from the police who were watching the building. The real safe was removed Saturday evening from the well lighted room in which it was kept and the robbery was not discovered until Monday morning when the manager of the office, who was also proprietor of the business establishment in which the post office branch was located, opened his store. The dummy was made of wood and canvas and was an exact reproduction of the real safe. The latter was found in the basement of the building where it was rifled by the thieves by blowing out the back.

CUT HULL TO RESCUE MAN FROM DEATH

Imprisoned for two hours in the stoke hole of a capsized steam dredge in Dover harbor, England, a stoker was rescued by cutting through the steel hull of the vessel, after the water had risen to the height of his neck. The man was unable to escape when the dredger turned turtle in a heavy storm but made his presence known by rapping on the steel hull with a hammer. He was jammed between the boiler and the ship's side and both his legs were broken. As soon as he could be located the blacksmiths attached to the dredge cut a hole through the heavy steel plates that formed the hull and the imprisoned man was taken out.

WHEEL-DRIVEN AUTO JACK

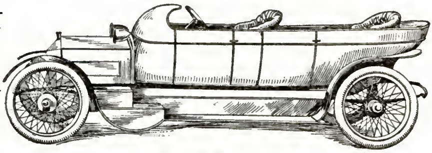
Among the numerous automobile accessories adapted to relieve the autoist of much of his hard labor is an air-pump which derives its power from one of the rear wheels by means of rollers. The wheel is backed upon the rollers, and these rollers operate the piston of the pump when the wheel revolves. The illustration shows this pump being used to raise the opposite wheel with a pneumatic jack.


Making a Car Raise Itself

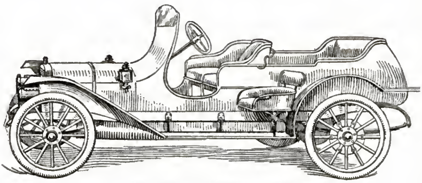
TWO 1911 AUTOMOBILE DESIGNS

Two interesting designs in automobile-body construction for 1911 are shown in the accompanying illustrations. In one the wind shield is incorporated on the body as part of the permanent construction. The back of the body is of the familiar torpedo type.

The other design shows a tendency to break away from the conventional straight sides, and the necessarily straight line of the frame has been made use of with the required depth of floor framing to obtain a pleasing curve of the body line. The hood extends well over the body to the level of the steering wheel. Unlike the usual type, this body is wider in front than in back, and the latter, instead of being of the torpedo type, has an overhang very much like that of an ocean liner.

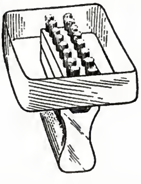


Body with Ocean Liner Stern



Wind Shield as Part of Body

FISH-SCALING BRUSH



In scaling fish with the ordinary knife or scraper, the scales fly in all directions, but with this scaling brush, invented in France, the flying tendency of the scales is hindered. The brush is made of steel wire and is surrounded by a metal guard.

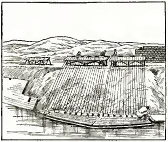
LONDON USES 6,000 PUBLIC MOTOR VEHICLES

Recent statistics show that almost 6,000 taxicabs ply the streets of London in place of the 11,000 horse-drawn vehicles of which the city formerly boasted. Motor cabs of all kinds have practically taken the place of horse vehicles in the English capital. There are some 7,500 of the former in the city, of which almost 6,000 belong to the public vehicle class. There are several of the motor-cab companies and the competition among them is keen. The vehicles are kept in good condition at all times and the average rate is eight pence per mile (about 16 cents). It is stated, however, that, owing to the demand for finer vehicles, the companies operating them have found this rate insufficient.

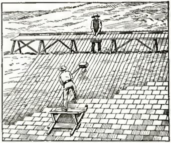
THIRD-CLASS SLEEPING CARS IN SWEDEN

The Swedish State Railways have introduced third-class sleeping cars. These cars, first used on the route between Stockholm and Malmo, have six berths to a compartment, arranged in tiers of three, the berths being provided with a mattress, blanket, and pillow slip. First and second-class sleepers are also provided.

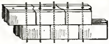
¶A mushroom with a head 11 in. in diameter and a stalk 6 in. in diameter, the whole weighing 1 ⅓ lb., was found recently near Yverdon, France.



Making a Concrete Block Embankment



Stringing the Blocks on the Wires



Shape of the Blocks

EMBANKMENTS OF WIRED CONCRETE BLOCKS

A unique method of concrete embankment construction, in which the concrete blocks are strung on wires, has been successfully used on the River Yonne in France. The idea was originated by an Italian engineer.

The bank of the river is first smoothed to a convenient slope, then the wires are strung the proper distance apart, fastened to a cable at the bottom, and to specially constructed frames at the top. Each frame, 10 ft. long and accommodating 25 wires, is in reality a bench on which the concrete blocks are placed and from which they are slipped onto the wires. The sections of these benches are alternately painted red and white to eliminate error in stringing the blocks, which are made in two shapes and interlock. One shape is fed onto the wires fastened to the red sections of the frame and the other to the sections painted white.

The form of the concrete blocks and the method of operation are shown in the illustrations. When the embankment is completed the frames are removed, and the wires twisted together and wound around piles which serve as anchors. The bottom is held down by its own weight.

The concrete protecting curtain thus made for the slope of the River Yonne extended about 5 ft. below the water line.

POINTLESS HATPINS

A pointless hatpin with interchangeable heads has become popular in Paris. Having no point to protrude beyond the side of the hat, it is obvious that the pin will not endanger the eyes of other people. Each hatpin is in reality two pins with one head, the pin part sliding through a star-like fixture permanently attached to the hat. Heads of various designs are provided with each pin.

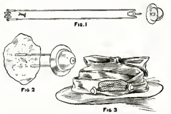
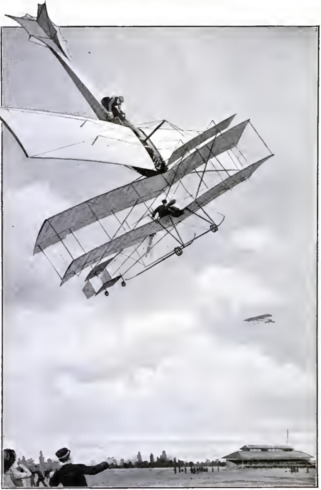


Fig.1

Fig 2

Fig 3

Fig. 1, Structure of the New Hatpin—Fig. 2, The Holder—Fig. 3, Manner of Arranging in Hat



AEROPLANES IN COLLISION

During a recent aviation meet at Milan, Italy, Capt. Dickson of the British army, in a Farman biplane, and M. Thomas, a Frenchman, in an Antoinette monoplane, collided in the air and crashed to the earth together. Both airmen were seriously injured. This was the first actual collision between airships.

METAL FROM FRENCH RUINS USED FOR CANAL MEDALS

From old copper, tin and other metals found in the ruins of the buildings and machinery, which were left by the French and mark their failure to build the Panama Canal, experts of the Philadelphia Mint have fashioned handsome medals and bars to be distributed among the employes of the Isthmian Canal Commission as rewards for faithful service. Two years' continuous service makes an employe eligible to receive a medal, and each subsequent two years' service entitles him to a bar setting forth that fact. There are 1,035 medals to be distributed and it is expected that they will be given out with appropriate ceremonies next month.

The medal was designed by Victor D. Brenner, the artist who made the design for the Lincoln penny. It is about the size of a silver dollar. The obverse side bears a relief portrait of the head and shoulders of former President Roosevelt, the model for the work having been especially made at Oyster Bay during the last year of Mr. Roosevelt's administration. It is unique in that it depicts the ex-President without glasses. Around the edge of this side of the medal is the legend: "For Two Years' Continuous Service on the Panama Canal." The reverse side shows a bird's-eye view of the Culebra Cut as it will appear in the finished canal, with steamers passing through. Above the horizon in deeply incised letters is inscribed, "The Land Divided, the World United." Around the edge is inscribed "Presented by the President of the United States." Below the Culebra Cut is the coat-of-arms of Panama, and under it a space is left for the name of the recipient.

WIRELESS DIRECTORY

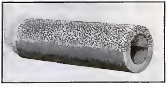
With the publication of the government wireless telegraph directory, just out, some idea is gained of the extent to which the wireless is now used. In this directory, perhaps the most extensive in existence, there are listed 1,520 stations. This total includes shore stations and ships, but does not take into consideration the battleships of foreign governments, nor are listed the hundreds of stations equipped and operated by amateurs. The directory is the work of the Bureau of Steam Engineering of the United States Navy. There are about 700 shore stations scattered about the globe; of this number 88 are on the Atlantic and Gulf coast of the United States, 48 on the Great Lakes, 51 on the Pacific coast and 16 in Alaska.

THE LAND DIVIDED
THE WORLD UNITED

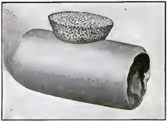
The Panama Canal Service Medal

POROUS TILE FOR SUB-IRRIGATION

The porous tile designed for sub-irrigation by an inventor of Austin, Texas, is attracting much attention, particularly in the Gulf coast region of Texas. Experienced irrigationists have long been practically united in the opinion that watering of the soil from beneath is far superior to the surface system of irrigation, but in the absence of any practical method of distributing the water into the ground, comparatively little progress has been made in that direction. The tile which the Texas man has invented is of two kinds and the material used concrete. One is so cast that the upper half is composed of pebbles, which are stuck together by a thin coating of cement, leaving pores between them through which the water



Porous Tile Used for Sub-Irrigation

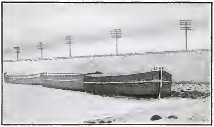


Another Type of Porous Tile

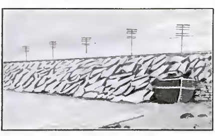
readily passes. The course of these pores is so tortuous, that roots or earth do not choke them and prevent the free distribution of the water into the soil. The other type of tile is solid. A hole is made in it, either on the top or bottom, and into this hole is fitted a diffusion block, composed of the gravel material and containing pores for the distribution of the water. It is claimed that this system of tiling also serves the purpose of drainage, when the soil contains an excess of moisture.

EMBANKMENT RETAINED BY OLD CANAL BOATS

In straightening the right-of-way of an eastern railroad, one section encroached upon the edge of a river, in one instance requiring a fill of more than 60 ft. Time was not available to construct a rip-rap or other usual type of retaining wall, so old canal boats, worthless for any other purpose, were utilized. These boats were hauled up on the bank by means of wire cables at bow and stern. When the sand fill had been carried out to a sufficient distance, the boats were buried under loads of sand and rock in order to give added stability to the work.



Canal Boats Moored into Position beside Railroad Tracks



Covered with Sand and Rock to Form Part of Railroad Embankment

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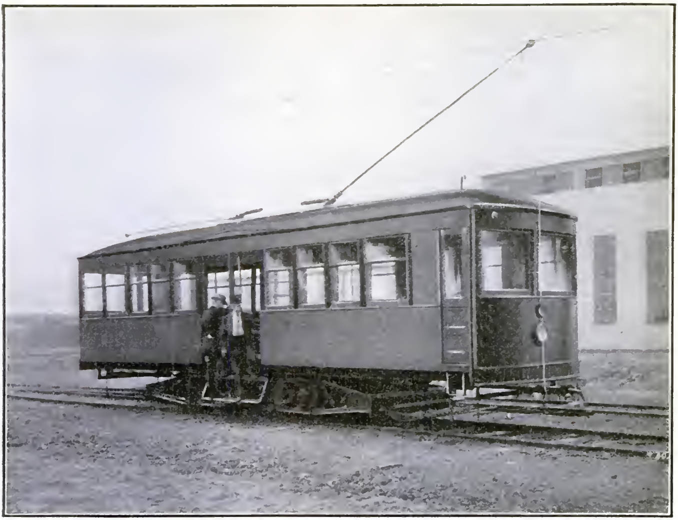
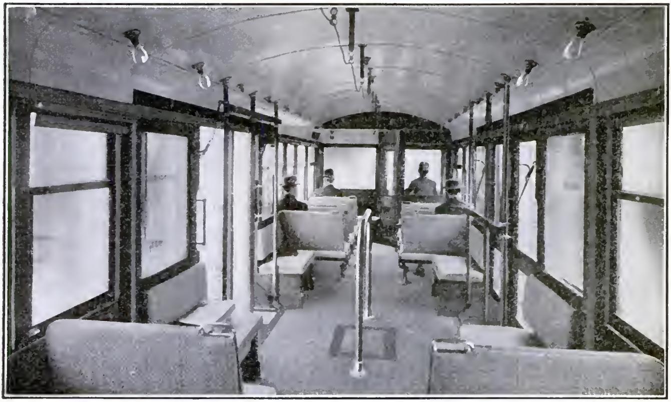
An automatic, coin-in-the-slot gasoline dispenser, to be placed along country roads frequented by automobiles, has been patented by a Dayton, Ohio, man.

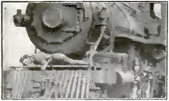


Side-Entrance Trolley Car, Showing Manner of Exit and Entrance

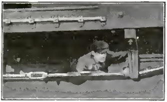


Interior View of New Side-Entrance Trolley Car

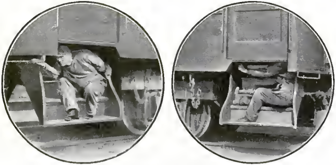
A SIDE-entrance trolley car is being tested on lines in Pennsylvania and Iowa and has so far been found to have several advantages over the old style car. The car has a motorman's platform in front, partitioned off from the body of the structure, but is entered by passengers from double doors placed in the center of each side. It is asserted that the car can be loaded and unloaded much more rapidly than the usual type. The cars so far put in service are 34 ft. long and can carry 44 passengers comfortably.



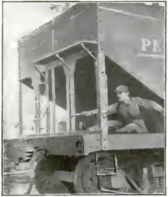
On the Pilot—A Warm Ride on a Cold Day



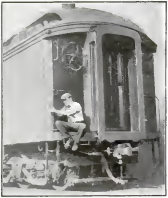
Across a Plank Between the Rods—Gritty and Perilous



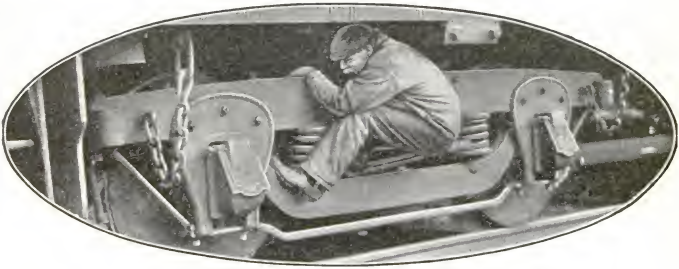
Under the Vestibule Door



Most Comfortable of All Free Rides



The Blind Baggage Method a Favorite



On the Springs—a Risky Ride

THE HOBO TOURIST EN ROUTE

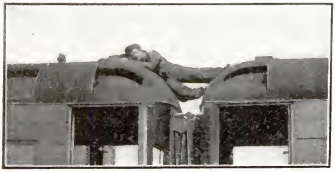
By F. J. SCHULTE

THE "Knight of the Road," who recks not the manner of his going so long as he goes without cost, has not been the least bit disturbed by the numerous improvements of the modern railroad car. A careful study of these vehicles of commerce by those who are afflicted with the "wanderlust" has led to the discovery of several ingenious ways to avoid the payment of railway tariffs. Some of these are almost as comfortable as a seat in the coach, for which good money must be given up. Some are safe but decidedly uncomfortable, and others can only be adopted by men who are willing to take their lives in their hands every mile of the journey.

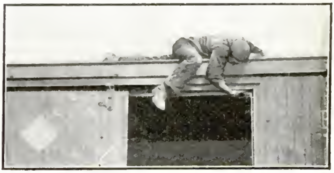
These last are not for the professional wanderer. He knows enough about the construction of a railroad car to select a place for free travel that will be safe as well as cozy. Despite the efforts of the railroad companies to keep the hoboes from finding free riding accommodation in the hidden corners of the car, the deadheads contrive to travel free and laugh at the efforts of the employes of the road to dislodge them and keep them off the trains.

One of the officials of a leading American railroad furnished a number of illustrations showing exactly how the tramps, who are up-to-date and accomplished in their profession, have reduced almost to a science the means of riding on trains, hidden from the sight of their enemies, the trainmen.

The most comfortable riding place on a freight train is to be found on the coal trucks, those huge affairs that the trainmen call "battleships." They are constructed, as can be seen in one of the illustrations on this page, with a cut-under at one end. This is the tramp's favorite traveling compartment. Not only is he effectively hidden, but the projecting part of the truck overhead protects him to a certain extent against rainstorms. In this snug hiding place, he can lie full length



Riding Between Cars—a Dangerous Perch



A Way of Getting into a Freight Car

with little fear of being thrown off, if he should fall asleep while the train is in motion. There are plenty of rods and uprights for the hobo to hold on to should the train be traveling over a rough track. Two or three tramps can be accommodated in this cozy little den so that, if the hobo fancies company, he can find room for it without overcrowding his retreat.

But in bitterly cold weather this perch is no longer inviting. Then, where does the hobo turn for warmth while riding to his unknown destination? Why, to the pilot of the engine, called in more popular phraseology the "cow catcher," although it is long since the days of its cow-catching utility. It will puzzle the ordinary traveler to understand how a man can find room to travel there. A glance at the picture illustrating this mode of travel will give the solution. He does not ride on the "catcher" proper, but on the upper part of the pilot, where the boiler thrusts its round body out over the base of the "catcher." Here the tramp is not only safe from being thrown off but, warmed by the heat from the boiler, he is as snug and comfortable as might be. There is, at a pinch, room for two men in this place, but that would be overcrowding it a little, and one is considered the limit by fastidious tramps.

It seems almost incredible that anyone could travel in the position shown in the picture of a man bracing himself between the tops of two cars, but two men recently rode from Pittsburg to Philadelphia in this manner. The advantage of this method of stealing a ride is that no trainman can see the rider, as he is perched above the door, out of sight.

Fashions have changed a little in the ever popular "blind baggage" method of tramp travel. The "blind baggage" is the car used to convey valuable consignments, such as bullion or money. It was formerly made with only one door. Now it has two, but one is always kept locked. This locked door is the one selected by the tramps for a ride in the way shown in another illustration. No one can see them while perched on the step. The only drawback to this perch is that sleep is out of the question. In that respect other methods of free travel are superior, but the "blind baggage" way has its points too, for a tramp is fairly safe from the disagreeable railroad hands.

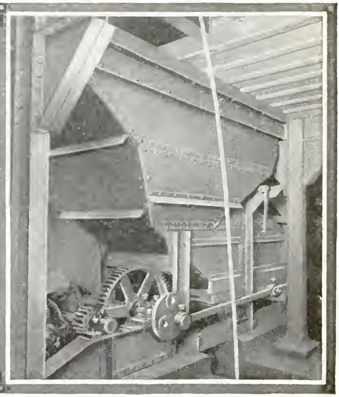
A gritty, disagreeable ride falls to the lot of the tramp who lays a plank across the rods beneath the railroad car, in the manner shown in one of the pictures. The tramp who knows his business prepares a plank of the right length to reach from side to side of the car and then insures his safety while riding on this improvised platform by studding it on each side with nails that cling to the rods and keep the plank from sliding off when the train bumps. As said before, it is a most uncomfortable method of traveling from the viewpoint of the traveler who pays for his railroad accommodation, but the free riders think it is not to be despised in fine weather.

Riding the springs is anotber risky and uncomfortable hobo method of travel. The tramp rides immediately over the wheels and has only a precarious hold to the truck. He cannot release it for an instant, and once he has taken his place there, he must hold on as long as the train is in motion, or be dashed to death on the track.

A much easier way of riding and one greatly in favor with the tramps, since the arrival of the vestibuled train, is to crawl under the doors of the cars and hide on the step. The tramp must be careful not to try this before the doors are closed, but once these have been shut and the train has started, he is safe from view until the next stopping place, when he must be ready to jump off and remain in the vicinity until the train starts again.

The manner of stealing a ride on a freight train in the conventional way is shown in one of the pictures. The tramp boards the train, scrambles along the roof of the freight car, leans over and slides back the door and then lowers himself into the interior.

An interior view of the dump house with a loaded car ready to be discharged into the steel hopper. The coal has come direct from the mines, and is about to start through the cleaning and grading processes.



The pit of the dump house, showing the dump hopper the top of which is shown in the other view, and a section of the scraper conveyor. The hopper has a capacity of ten tons of coal.

Cleaning and Grading Coal by Electricity

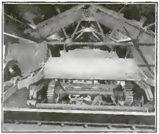
The process of cleaning and grading coal in an up-to-date, electrically operated picking house, or tipple, is shown in the accompanying illustrations. Operating at slow speed, this plant will handle 375 tons of coal per hour, and at highest speed will almost double this output.

The coal, received from the mine in steel cars, is dumped into a steel hopper having a capacity of 10 tons. This hopper is provided with an automatic plate-feeding device operated by a 10-hp. motor, and is so arranged that the amount of coal discharged to the conveyor may be varied as desired. The conveyor carries the coal to the screens, a distance of about 130 ft., the return chain passing up the incline at the top at a pitch of 4½ deg.

Four sets of shaker-screens receive the coal from the conveyor, three of them placed end to end and forming a continuous line with the lump-picking tables, while the fourth, for the nut coal, is located directly below the second screen. A 75-hp. motor supplies the shaking power, transmitted by belts to eccentric shafts. The slack and fine coal falls through to the slack bin while the mass is passing over the first screen. The lump coal is transferred from the second screen to the picking table through the third screen, which is a shaking chute. The coal dropping through the second screen falls into the fourth screen, the nut coal passing from it through the revolving screen to the nut-picking table.

The picking tables are arranged about 25 ft. above the railroad tracks, so that the coal, after passing over the tables, may run down an incline into the cars. The adjustable loading booms are designed to reduce the breakage of coal, as it drops to the cars, to a minimum.

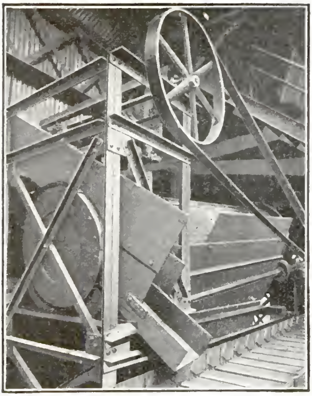
In This Illustration may be Seen Another Section of the Scraper Conveyor Line, Showing the Return Chain at the Top. The Trough through Which the Coal is Pushed Consists of Flanged Steel, 3/8-in. Thick.



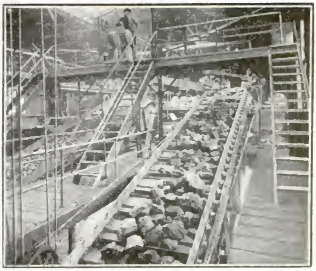
The Conveyor at Point of Discharge, with Coal Falling through to Screens. The Direct-Current Motor Which Drives the Conveyor is Shown at Right. Speed-Changing Gears are Shown in Foreground.

The End of the Shaker-Screens Which Receives Discharge from the Conveyor Line. No. 1, 2 and 3 Screens Form the Upper Section, with the Fourth Screen Directly Underneath. These Screens Discharge to Tables.

The Coal on This Nut-Picking Table is That Which Fell into the Fourth Screen in the Opposite Illustration. It had to Pass Through a Revolving Screen Before Reaching the Table.

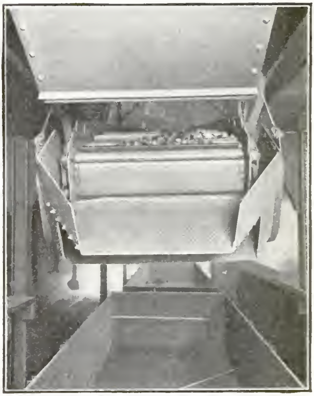


This is the Revolving Screen Which Handles the Fine Coal. The Nut Coal Passes through the Chute to the Nut-Picking Table, while the Smaller Particles Fall through the Mesh.



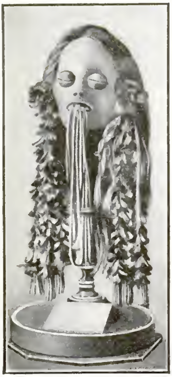
Interior of Picking House with Lump-Picking Table in Foreground. The Egg-Picking Table is Shown at the Left. Both Loading Booms are Down, Showing Method of Delivering Coal to Cars.

Exterior View of Building in Which the Electrically Operated Devices Shown in Preceding Illustrations are Located. Cars are in Position to Receive the Different Grades of Coal.



The End of the Lump-Picking Table, Which is Termed the Adjustable Loading Boom. Underneath is Shown the Coal Cars, One of Which is in Position to Receive the Discharge.

BRAZILIAN WAR MUMMY

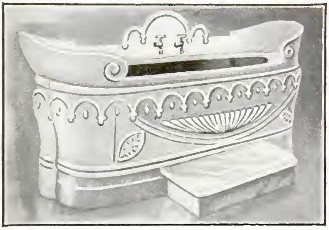


Grewsome Embalmed Head

It is an old and still surviving custom among the Indians of the upper Amazon River basin to cut off the heads of fallen enemies, and to embalm and decorate them as trophies. The illustration shows such a head embellished with feather pendants and other decorations. In lieu of glass eyes, the eye cavities are filled with the incisors of a large amphibious rodent. The strings that hang from the mouth are intended to form a gag, which serves to prevent the soul of the departed warrior from opening the lips to insult its victor.

SPANISH QUEEN'S MARBLE BATH IN A HOTEL

A Paris hotel which is classed as one of the best in the world, boasts the possession of the identical marble bathtub made for and used by the late Queen Isabella of Spain. The hotel is built on the site of an old palace that was long occupied by the Spanish diplomatic representatives in France and is fitted up in luxurious style. The Queen Isabella bathtub forms part of the equipment of one of the many private bath rooms. It is constructed entirely of marble and is beautifully carved. It is much higher than the ordinary bathtub, its sides being at least 4 ft. from the floor at either end and not more than a foot lower in the center where the bather is supposed to climb in. A high step is provided for the person seeking cleanliness. The high ends are formed by elaborately carved scrolls. The bath is provided with hot and cold water faucets.



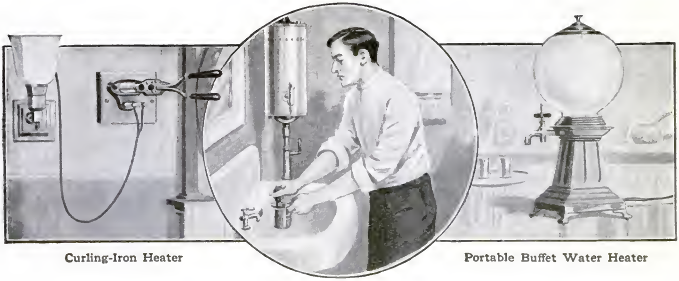
The Late Queen Isabella's Bathtub as it Now Appears in a Paris Hotel

NEW TYPES OF ELECTRICAL HEATERS

New types of electrical heaters for three purposes are shown in the accompanying illustrations.. The electric curling-iron heater may be attached to the wall or used on a dressing-table. The nickel-plated casing is provided with four openings, the two outer ones being designed to hold the curling-irons when not in use. The two inner openings lead to the heating-chamber, where an automatic switch closes the circuit to the heating element as soon as the iron is thrust in. The withdrawal of the iron automatically cuts off the supply of energy.

The portable buffet heater is designed for household use, and has a capacity of 3 qt. Filled with cold liquid, the first glassful can be drawn, steaming, in 45 seconds; a second glassful, 15 seconds later, and so on until the globe is emptied.

The lavatory heater, permanently attached to the water supply as shown, is ingenious. The heating element consists not of wire, but of the water in the heater itself, through which current is passed by carbon-rod electrodes. These rods are incased in a metallic cylinder through which the water flows, and are so arranged that there is an open circuit between them. The heater cannot become operative until



Curling-Iron Heater

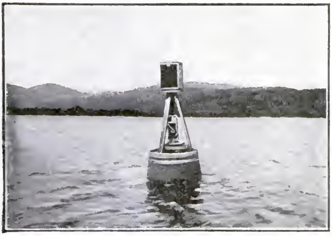
Lavatory Heater

Portable Buffet Water Heater

water enters the compartment, since the water itself forms the connecting link between the carbons. Thus current is only used while the water is running from the spigot below, and the switch operating the heater can be turned on all day without wasting current.

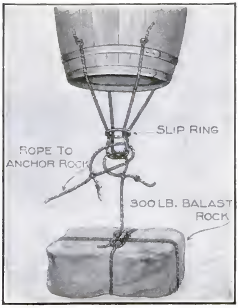
A SIMPLE MAIL FLOAT

By H. R. BENJAMIN



On New Found Lake, N. H., as on nearly all other lakes, the mail is delivered by small steamers. It is placed in mail boxes supported on small floats, which are moored as near the shore as the steamer can run. Many of these floats are not only unsightly, but very liable to capsize in a storm.

The writer has just made a mail float which is neat, exceptionally stable in rough weather, and very simple and inexpensive to build. It consists of a good oil barrel, with a 2-ft. high tripod on one end and the mail box firmly attached to its top. The barrel was thoroughly tested to make sure that it was watertight, and after the tripod had been attached, the whole was painted a dark green. A large stone was fastened very close to the



ENLIST AS LOCAL AGENT

for the Fast-Working, Fast-Selling

Oliver Typewriter!

The battle lines of the Oliver Typewriter forces are forming for another campaign of conquest. The triumphs of 1910—the most brilliant ever achieved by a great sales organization—have served to inspire to more mighty deeds in the ensuing year!

The roll-call of the Oliver Sales Organization shows over 15,000 men **under arms**—the most magnificent body of trained salesmen in the world.

This Sales Force, great as it is, cannot cope with the tremendous increase in business which the popularity of the Oliver Typewriter has created.

Resident Agents Wanted in Every Town and Village

This advertisement is a call for reinforcements—to enable the Oliver Sales Force to extend its skirmish lines to all sections of the country.

The central idea of our selling system is to have—**everywhere**—a vigilant agent of the Oliver Typewriter constantly **on the ground**. Whether that agent devotes part or all of his time to the sale of the Oliver Typewriter is left to his own discretion.

Teachers, tradesmen, doctors, ministers, lawyers, stenographers, telegraph operators, printers, mechanics—men and women in a multitude of different occupations—can succeed as Local Agents for the Oliver Typewriter. If you have the **will** to take up this work, **we will point out the way.**

The OLIVER Typewriter

The Standard Visible Writer

The Oliver Typewriter has been breaking records since the day it was placed on the market. **Efficiency** records, **speed** records, **endurance** records—it has won them in quick succession. It sets the swiftest pace in sales by giving unparalleled service.

With **several hundred less parts** than other standard typewriters, its **simplicity, strength, ease of operation, versatility and convenience** are correspondingly increased.

"17-Cents-a-Day" Plan
A Wonderful Aid to Agents

This machine, with all of its advantages, all of its time and labor-saving devices, the Local Agent can buy—**and sell**—for Seventeen Cents a Day.

The Oliver Typewriter No. 5—the newest model—the $100 machine—equipped with a brilliant array of new devices and conveniences, actually offered for **pennies!**

This irresistible offer enables the Local Agent to succeed **right from the word "go!"**

Write for Inspiring Book,
"The Rise of the Local Agent"

Read the life stories of men who rose from the Local Agency ranks to positions of great importance in the Oliver Organization—How one Local Agent is today the Typewriter King of Mexico. (Mexican Government reports show that more Oliver Typewriters are imported than all other typewriters combined.)

These inspiring stories will open your eyes to the **big opportunities still open** for ambitious men to carry the Oliver flag, fight for new records and reap the rewards of success.

Send a personal letter today while the **Call for Volunteers** is ringing in your ears.

Address Agency Department (6)

THE OLIVER TYPEWRITER CO., 201 Oliver Typewriter Bldg., Chicago

Please Mention Popular Mechanics